

# **Sector Performance Report**

## **Pesticide Formulators/Manufacturers**

PIBs 7135e

**June 2009**

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Sector Compliance Branch, Operations Division,  
Ontario Ministry of the Environment  
Canada

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## **Executive Summary**

The Ministry of the Environment's (MOE), Sector Compliance Branch (SCB) conducted inspections of 19 pesticide formulator/manufacturer facilities from August to October 2008. The focus of these inspections was to assess compliance with Ontario's environmental legislation, assess emergency preparedness and review the use of established best management practices (i.e., beyond compliance).

The inspections revealed that 7 facilities out of 19 (37%) were in compliance with all of the legislative requirements that were assessed, 11 facilities (58%) were in non-compliance with one or more administrative requirements which were unlikely to pose an environmental or human health risk, and 1 facility (5.3%) had potential environmental or human health concerns identified. The predominant facility violations were related to administrative issues surrounding waste manifesting, waste storage reporting and lack of air approvals. The main violation identified at the one facility that failed was the intermittent failure to comply with their air approval for their thermal oxidizer. The facility that failed their inspection has since addressed all issues identified in their report.

An assessment of beyond compliance activities indicated that at the time of the inspection there were no environmental issues due to improper pesticide storage/containment, emergency response procedures were being developed in the facilities and utilization of MOE guidelines (best management practices) was not standard practice among the facilities.

SCB continues to follow-up with companies to ensure corrective action has been taken and compliance has been achieved.

## **1.0 Introduction**

As part of its proactive inspection program, the ministry conducted inspections across the Pesticide Formulating/Manufacturing sector, to evaluate environmental compliance, assess emergency preparedness and review the use of established best management practices (i.e., beyond compliance). The goal of the inspections was to reduce risk by encouraging the proper handling and storage of pesticides and pesticide related products, and educate the sector on the need for proper contingency planning. In 2007, a fire related fish kill occurred at a pesticide formulating site, further highlighting the need for contingency planning to reduce environmental impacts resulting from emergency situations.

This report provides the Sector Compliance Branch's (SCB) inspection findings and corrective actions taken in the pesticide formulator/manufacturer inspection sweep. Appendix A contains a glossary of terms used in this report. Appendix B contains a list of facilities inspected in the Pesticide Formulator/Manufacturer sector (2008).

## **2.0 Sector Profile**

Pesticides manufacturing is classified under the North American Industry Classification System (NAICS) as part of the Basic Chemical Manufacturing sector (NAICS 3251), which comprises establishments primarily engaged in manufacturing chemicals using basic processes such as thermal cracking and distillation.

Pesticide manufacturers produce the active ingredients in pesticides from basic chemical feedstock including petrochemicals, inorganic acids, gases such as chlorine, and other chemicals. The manufacturers produce the pesticide, but typically not in a form that is ready for use.

Pesticides formulation under NAICS is classified as part of the Pesticide and Other Agricultural Chemical Manufacturing sector (NAICS 325320), which comprises establishments primarily engaged in manufacturing agricultural chemicals, except fertilizers, as well as establishments engaged in manufacturing household pest control products.

Pesticide formulators primarily accept the active ingredients and mix, blend, or dilute them with inert ingredients to obtain a product that is ready for distribution. These products may be sold directly for application or be used in manufacturing other products (e.g., pool chemicals). Active ingredients are mixed with solvents, boosters and carriers to achieve the desired formulation.

Pesticide formulation products include, but are not limited to, herbicides, fungicides, insecticides, rodenticides, repellents, and disinfectants.

### **3.0 The SCB 2008-2009 Inspection Sweep**

The SCB targeted 55 potential pesticide formulating and manufacturing facilities across the province in order to evaluate environmental compliance within the sector, initiate appropriate abatement action to correct situations of non-compliance and gauge the industry's use of best practices related to spill prevention and emergency response. The inspections were carried out from August to October 2008.

At the time of the inspections, s. 129(5) of Reg. 914 under the *Pesticides Act* exempted pesticides formulators/manufacturers from the storage, sale or transfer requirements set out in Reg. 914 and the *Pesticides Act*, therefore non-legislative “beyond compliance” questions were included in the inspections in order to assess spill prevention and contingency plans, and conformance with the *Guidelines for Environmental Protection Measures at Chemical and Waste Storage Facilities* (MOE publication), *Sewer Use Best Management Practices – Chemical Manufacturing Sector* (MOE publication), and *Agrichemical Warehousing Standards Association Industry Guidelines* (Industry developed and administered standards for environmental protection at agrichemical warehouse facilities).

In 2009, O. Reg. 63/09 made under the *Pesticides Act*, replaced Reg. 914 and changed the exemptions from the storage, sale or transfer requirements under Reg. 914 for manufacturers and formulators. A summary of some of the requirements for formulators/manufactures can be found in Section 7.0 of this report. O. Reg. 63/09 was not in force at the time of the inspections.

Three facilities inspected were also pesticide vendors and, therefore, were subject to Reg. 914 and were not exempt from the storage, sale or transfer requirements under Reg. 914.

### **3.1 Facility List**

The sweep sought to identify all pesticide formulating/manufacturing sites in Ontario. The list of potential pesticide formulating/manufacturing sites in Ontario was prepared by using information from:

- Health Canada’s Pesticide Management Regulatory Agency (PMRA), the federal agency responsible for pesticide registration under the Pest Control Products Act – Canada. Pesticide registrants advise PMRA of companies that may be contracted for formulating pesticide products. As this is a contract business, PMRA indicated that pesticides might not be formulated at all the listed sites.; and
- Scott’s Directory of Ontario companies classified as Pesticide and Other Agricultural Chemical Manufacturing (NAICS 325320).

Based on the information obtained and further research into the facilities on the initial list, the SCB was able to effectively identify 55 facilities for inspection (see Table 1).

**Table 1. Potential Pesticide Formulator Facilities by Ministry of the Environment (MOE) Region.**

MOE Region	Facilities
Central	38
Eastern	3
Southwestern	5
West Central	9
<b>Total</b>	<b>55</b>

### **3.2 Inspection Focus**

The intention of the pesticide formulator/manufacturer inspections included the following:

- Reduce the likelihood of adverse impacts to the environment;
- Encourage strong environmental performance by evaluating compliance with legislative requirements applicable to this sector;
- Assess emergency preparedness; and
- Assess conformity with guidelines, best management practices, standards and risk reduction measures.

Conformance with guidelines, best management practices, standards and risk reduction measures was assessed through a checklist of 24 non-legislative questions, grouped into the following categories:

- *The nature of the facilities inspected:* Identify their primary activity and what kind of pesticides they produce.

- *Storage/Containment:* Examine whether or not a facility stores and handles raw materials and products safely in order to minimize the risks associated with these hazardous chemicals, particularly those that are flammable, corrosive or reactive.
- *Emergency response capacity:* Determine whether or not a facility has developed and maintained an emergency response plan to deal with a hazardous materials incident, such as a fire or chemical spill. This includes installing equipment to prevent fire propagation such as sprinkler systems, training in materials handling and emergency response, simulating emergency scenarios, and providing a copy of the emergency response plan to the local fire department.
- *Implementation of guidelines:* Determine whether or not a facility has applied the following guidelines, which are designed to reduce risk of fires, spills and/or industrial accidents:
  - *Guidelines for Environmental Protection Measures at Chemical and Waste Storage Facilities;*
  - *Sewer Use Best Management Practices – Chemical Manufacturing Sector; and*
  - *Agrichemical Warehousing Standards Association Industry Guidelines.*

#### **4.0 Inspection Results and Observations**

Out of the 55 facilities, 19 met the criteria for pesticide formulators/manufacturers. The remaining facilities were either out of the business or were part of other chemical manufacturing sectors, such as pharmaceuticals. Therefore, only those 19 facilities are considered in this assessment of the pesticide formulator/manufacturer sector.

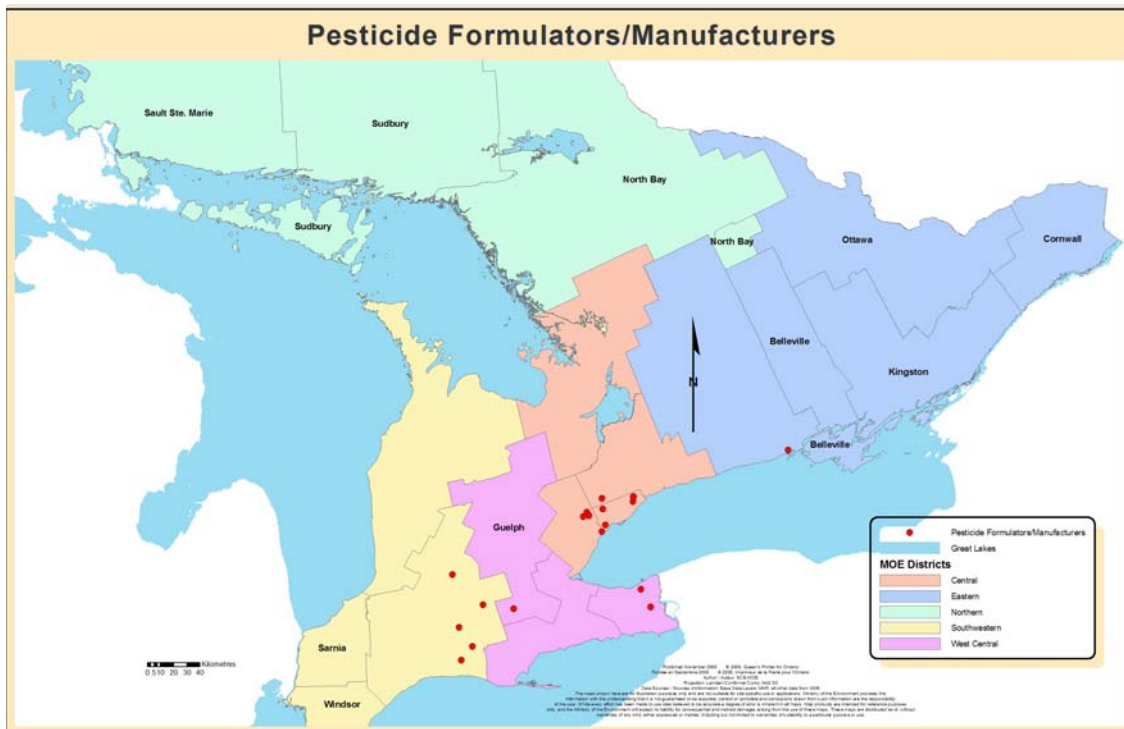
## 4.1 Geographical Distribution

The 19 facilities are located in four MOE regions. About half of these are concentrated in the Central Region. (See Table 2 and Map 1)

Table 2. Geographical distribution of 19 pesticide formulators.

MOE Region	Facilities
Central	10
Eastern	1
Southwestern	5
West Central	3
<b>Total</b>	<b>19</b>

Map 1. Pesticide Formulators by MOE Region.





## 4.2 Compliance Activities

Compliance activities revealed that 7 facilities (37%) were in compliance, 11 facilities (58%) did not meet at least one administrative requirement, and 1 facility (5%) had potential environmental and/or health impacts. The failure of the 1 facility was related to the intermittent operation of their thermal oxidizer at lower temperatures than prescribed in their approval. In response to a violation notice, the facility that failed their inspection has developed new procedures for the thermal oxidizer in order to improve future compliance.

### 4.2.1 Air Emission Issues

During the inspections of pesticide formulating/manufacturing facilities many pieces of air emission control equipment were observed including the following:

- Baghouses used to control particulate matter from powdered pesticide formulation areas;
- Spray can filling areas for the packaging of aerosol pesticides;
- Mixing vessels with snorkel exhausts for preparation of liquid pesticides;
- Natural gas-fired heaters, boilers and dryers used for comfort heating and/or pesticide formulation; and
- Fumehood exhausts from Research and Development or Quality Assurance and Quality Control Labs.

Section 9 of the *Environmental Protection Act* (EPA) requires (in part) that equipment, structures or processes that may discharge a contaminant to the atmosphere be approved before construction, alteration, extension or replacement of the equipment. Approval is also required for the ongoing operation of any equipment that may discharge a contaminant to the atmosphere.

Violations of section 9 of the EPA were noted during six inspections including failure to obtain appropriate approvals and/or failure to comply with conditions of their current approvals.

Contaminants emitted during pesticide formulating and manufacturing processes can include but are not limited to volatile organic compounds (VOCs), inorganic dusts/powders and combustion gases. These emissions can be generated during the creation of the active ingredients, blending of the final product, packaging and cleaning steps of the processes.

For more information regarding the Certificate of Approval (Air) Application Process refer to MOE Publication No. 4174e *Guide for Applying for Approval (Air & Noise)* – November 2005.

#### 4.2.2 Subject Waste Issues

In addition to solid non-hazardous wastes generated during the formulation/manufacturing processes several subject waste streams are also common including off-specification products; used air filter media (e.g. fabric filters, spent activated carbons); packaging waste; dry sludge from wastewater treatment and filter cakes.

Section 18 of Reg. 347 requires (in part) that every generator who is involved in production, collection, handling or storage of subject waste submit a Generator Registration Report. Although not a comprehensive list, typical waste classes observed during SCB's inspection sweep are detailed in Table 3.

Table 3: Examples of typical waste classes found during the inspection sweep.

Waste Class Number	Waste Class	Example Generating Process
269	Non halogenated pesticides	Off spec. pesticides
242	Halogenated pesticides and herbicides	Off spec. pesticides
252	Waste crankcase oils and lubricants	Oil generated from machine maintenance
263	Miscellaneous waste organic chemicals	Organic laboratory wastes generated by QA/QC or R&D.
331	Waste compressed gasses	Damaged or Off spec. aerosol cans

In addition to annual generator registration requirements, Reg. 347 contains record retention and reporting requirements with regards to the movement and storage of subject waste. The following are typical examples of legislative requirements which were violated:

- Generators did not retain Copy 2 (Green) of manifests for shipments from the site for at least two years;
- Generators did not file storage reports with the appropriate MOE Director for waste stored on-site for over 90-days; and
- Generators did not properly complete Section A of manifests prior to the shipment of waste from the site.

To obtain further information on waste generation registration, manifesting and reporting requirements please consult the following information sources:

- Hazardous Waste Information Network, [www.hwin.ca](http://www.hwin.ca);
- *Registration Guidance manual for Generation of Liquid Industrial and Hazardous Waste*, amended February 2007, MOE; and
- EPA Regulation 347, as amended.

#### 4.2.3 Pesticide Storage Issues

Although, at the time of the inspections the majority of inspected facilities were exempt under s. 129(5) of Reg. 914 with respect to the storage, sale or transfer of pesticide, a few facilities were also pesticide vendors and therefore were not exempt.

Reg. 914 contains several requirements for pesticide vendors in Ontario, including the following:

- A person or business must hold a general vendor's license to sell Schedules 1, 2, 3, 4, 5 or 6 pesticides and must employ a full-time, certified outlet representative for the premises;
- A person or business must hold a limited vendor's license to sell Schedules 3, 4 or 6 pesticides (generally domestic type products);
- Specific pesticide storage requirements; and
- Submission of an annual fire department notification of stored pesticides.

On April 22, 2009, Reg. 914 was revoked and O. Reg. 63/09 under the Pesticides Act came into force. The regulation includes provisions to remove specified exemptions for pesticide formulators and manufacturers to harmonize requirements with those set out for pesticide vendors. See Section 7.0 for additional information on new requirements.

#### 4.2.4 Corrective Actions

Within a reasonable time and depending upon individual situations, facilities were requested, through issuance of violation notices or letters, to complete specific activities to achieve compliance with Ontario's environmental laws.

Some examples of these activities are: completion and submission of an application form for a Certificate of Approval (Air), submission of a completed 90-day storage report for subject waste stored at the site to the Regional Director, updating generator registration report, etc.

Failure to provide acceptable confirmation of compliance could result in the company being referred to the Investigations and Enforcement Branch (IEB) for further investigation. As of November 2009, no IEB referrals have been made.

Ten facilities were served violation notices and two received letters requesting actions be taken to achieve compliance.

#### 4.3 Beyond Compliance Activities

Overall, facilities demonstrated good chemical storage/containment practices. Emergency response planning was underway in all facilities but some could strengthen their practices. Utilization of applicable guidelines showed the weakest uptake of beyond compliance activities.

- *Nature of Facilities:* Only 2 facilities were found to be pesticide manufacturers, the 17 remaining were formulators.

Only 3 out of 19 facilities were found to be formulating/ manufacturing pesticides exclusively. Other facilities had additional manufacturing lines such as cleaning products or air fresheners.

- *Storage/containment:* No indications of improper storage and containment were found at the time of inspection. Approximately 79% of facilities considered product compatibility when storing raw materials and products. This decreases the probability of violent reactions occurring if a container breaks and chemicals mix accidentally.

In addition, 79% of facilities had secondary containment in place to reduce the potential for spills or accidental losses of chemicals. All of these appeared to be built in accordance with the secondary containment specifications of the MOE *Guideline for Environmental Protection Measures at Chemical and Waste Storage Facilities*.

- *Emergency Response:* Emergency response planning was underway in all facilities but some could work more closely with the local emergency agencies such as fire department or police to enhance preparedness for and response to any emergency.
  - 95% of the facilities had implemented emergency response training and had emergency contact lists readily available.
  - 84% of the facilities had a written emergency response plan available at site, and 74% had provided a copy to the local fire department or police agency.
  - 32% of facilities had provided a potential annual inventory list of stored chemicals to the local fire department or police agency.
  - 47% of the facilities had worked actively with these agencies in simulating emergency scenarios to test their ability to respond to emergency situations, and 74% of the facilities had provided a pre-incident fire plan to their local fire department.
  - 58% of the facilities had installed sprinkler systems to prevent fire propagation.

Some facilities are more active in preparing for emergency situations. For instance, 53% had an emergency environmental contractor in order to provide expertise on how to handle a particular incident such as off-site liquid flow. In addition, 63% had an external emergency storage unit; material safety data sheets and spill clean up kits, etc., in the event the facility was inaccessible.

- Use of guidelines: overall, the utilization of applicable guidelines is not very high among the facilities.
  - 53% of the facilities fully applied all of the *MOE Guidelines for Environmental Protection Measures at Chemical and Waste Storage Facilities*.
  - 32% of the facilities applied the *MOE Best Management Practices for the Chemical Manufacturing Sector*, specifically for pesticides.
  - 16% of the facilities followed the *Agrichemical Warehousing Standards Association Industry Guidelines*.

Of the 19 facilities, 2 had applied all three guidelines, 9 had applied one or two guidelines, and 8 utilized none of the guidelines. Based on a review of the inspection results, the ministry will undertake further education and outreach activities to promote applicable use of guidelines and the amended regulatory requirements under O. Reg 63/09.

## **5.0 Current Compliance Status**

As of November 2009, 10 facilities out of 12, including the facility that failed their inspection have come into compliance with the violations indicated in their Notice of Violation, or letter. The remaining facilities are currently working to achieve compliance with Ontario's environmental regulations.

## **6.0 Summary**

The findings of the pesticide formulators/manufacturers 2007/08 inspection sweep by SCB were as follows:

- i. Non - compliance rate was 63%; 1 facility failed the inspection and had potential to impact human health or the environment, and 11 facilities had administrative non-compliances, unlikely to result in human health and/or environmental impacts.
- ii. The main contraventions among the facilities pertained to failure to operate in accordance with a Certificate of Approval (Air), failure to report waste storage on-site longer than 90 days without notifying the ministry, and failure to keep copy 2 of subject waste manifests for a period of two years.
- iii. The ministry found no evidence of significant environmental issues regarding pesticide storage at the inspected facilities.
- iv. Emergency response planning was underway in all facilities but some could improve their procedures by working closely with the local emergency agencies.
- v. Utilization of applicable guidelines showed the weakest uptake of beyond compliance activities.



Key outcomes of the inspection sweep were:

- Facilities applying for Certificates of Approval (Air) and complying with the conditions of the Certificates of Approval (Air);
- Increase in awareness of available guidelines that could reduce facilities risks of impacting the environment; and
- Increase of awareness and implementation of waste management regulation requirements among the facilities.

## **7.0 New Regulatory Requirements**

In 2009, the government introduced O. Reg. 63/09 under the *Pesticides Act*, which (in part) removed specified exemptions for pesticide formulators and manufacturers to harmonize requirements with those set out for pesticide operators and vendors.

As of April 22, 2009, a business that carries out any of the following activities is considered a manufacturer, and must meet storage and fire department notification requirements (see below):

- The formulator of a Class 1 pesticide into another pesticide;
- The manufacturing of a pesticide into a product;
- The incorporation of a pesticide into a product; and
- The packaging or distribution of a pesticide or product containing a pesticide.

### **Sales and Transfer Requirements**

Licensed vendors shall not sell or transfer Class 1, 2, 3 or 4 pesticides to a person involved in manufacturing operations described above unless that person presents written confirmation from a MOE Director under the *Pesticides Act* to purchase such pesticides.

## Rules for Storage and Fire Department Notifications

The ministry has harmonized storage and fire department notification requirements for manufacturers with existing requirements for operators and vendors. These requirements ensure that local fire departments know where pesticides are stored to protect human health and the environment.

### Pesticide Storage

A person who carries on a business described above must meet new storage requirements such as security, ventilation of storage areas and signage to protect health and safety and the environment.

### Fire Department Notification

A person who carries on a business described above must notify the local fire department on an annual basis by providing a Fire Department Notification form (see the ministry's website for a copy of the form) that identifies the pesticides in storage, location and conditions of storage and identifies a person responsible for the pesticides.

Additional information regarding the requirements of O. Reg. 63/09 is available at [www.ene.gov.on.ca/en/land/pesticides/index.php](http://www.ene.gov.on.ca/en/land/pesticides/index.php).

## Appendix A.

### Glossary of applicable terms

- ❑ **Inspection:** An on-site assessment of a regulated person, business or other entity (i.e. vehicle) by an inspector for the purpose of assessing compliance with environmental law. This must occur at the location of the regulated activity (fixed or mobile) to ensure that the potential for identifying violations exists.
- ❑ **Non-compliance:** contravention of an Act or regulation or not complying with the terms of an order, license or Certificate of Approval.
- ❑ **Non-compliance Rate:** The proportion of inspected entities within a sector that had at least one violation. (Administrative Fails + Fails)/Inspections.
- ❑ **Pass:** An inspection where no legislative violations were identified. The company is considered to be in compliance.
- ❑ **Administrative Fail (Admin. Fail):** An inspection where legislative violations were identified and/or a legislative authority was applied (e.g. Provincial Officer Order issued). The company is not in compliance but there are no indications of/potential for human health impact or environmental impairment.
- ❑ **Fail:** An inspection where legislative violations were identified and/or a legislative authority was applied (e.g. Provincial Officer Order issued). The company is not in compliance and there is/are indication(s) of/potential for human health impact or environmental impairment.
- ❑ **Notice of Violations:** Written warning to the inspected company, advising the company of actions it should take to come into compliance. Upon receipt of a Notice of Violation, it is up to the facility to ensure that the necessary measures are taken to achieve compliance.
- ❑ **Referral of companies to the Ministry of the Environment's Investigations and Enforcement Branch (IEB):** Potentially serious cases are referred to the IEB for further review and possible charges.

## **Appendix - B**

### **List of facilities inspected in the Pesticide Formulator/Manufacturer Sector (2008)**

Status as of May 22, 2009

#### **A. INSPECTION RESULTS: PASS**

<b>Company Name</b>	<b>Site Address</b>	<b>Site Municipality</b>
1540315 Ontario Limited o/a PDQ MFG	33 Melford Dr.	Toronto
Future Transfer Co. Inc.	292176 Culloden Line	Aylmer
Future Transfer Co. Inc.	55187 Talbot Line	Aylmer
Glen Chemicals Ltd	1149 Bellamy Rd	Toronto
Kemira Chemicals Canada Inc.	321 Welland Ave	St. Catharines
Spray-Pak Industries Inc.	7550 Kimbel St	Mississauga
Univar Canada Limited.	64 Arrow Rd.	Toronto

#### **B. INSPECTION RESULTS: ADMINISTRATIVE VIOLATIONS IDENTIFIED**

##### **COMPLIANCE ACHIEVED:**

<b>Company Name</b>	<b>Site Address</b>	<b>Site Municipality</b>
Adell Packaging & Suppliers Inc.	750 Millway Ave	Vaughan
D.H. Jutzi Limited	279 Lorne Ave E	Stratford
Easy Way Cleaning Products Limited	10 & 11 Houser's Lane	Woodstock
Glengarry Chemicals Ltd.	33 Melford Dr.	Toronto
Home Hardware Stores Limited	6 Brian Drive	Burford
L.V. Lomas Limited	99 Summerlea Rd	Brampton
NCH Canada Inc.	239 Orenda Rd.	Brampton
Nu-Gro Corporation (Agrium Advanced Technologies)	2720 Couch Rd	Thames Centre
Surekiller Products Ltd.	1285 St. Mary's Ave.	Mississauga

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**C. INSPECTION RESULTS: ADMINISTRATIVE VIOLATIONS IDENTIFIED**

**WORKING TOWARDS COMPLIANCE:**

<b>Company Name</b>	<b>Site Address</b>	<b>Site Municipality</b>
Korex Canada	104 Jutland Rd	Toronto
Nu-Gro Ltd.	10 Loyalist Drive	Brighton

**D. INSPECTION RESULTS: SIGNIFICANT VIOLATIONS IDENTIFIED**

**COMPLIANCE ACHIEVED:**

<b>Company Name</b>	<b>Site Address</b>	<b>Site Municipality</b>
Cytec Canada Inc.	9061 Garner Road	Niagara Falls